

## Best Management Practice NS-5 - Clear Water Diversion

Many projects involving bridge retrofits, bridge widening, or drainage facility construction require water from an adjacent stream, drainage channel, or storm drain system to be temporarily diverted during construction. Improper clear water diversions have the potential to impact water quality. This bulletin reviews Best Management Practice (BMP) NS-5, Clear Water Diversion, which contains practices that minimize the potential impacts from such construction activity.

### Key Considerations

For natural water courses, ensure compliance with any requirements or mitigation measures called out in contract special provisions or regulatory agency permits from the U.S. Army Corps of Engineers, California Department of Fish and Game, Regional Water Quality Control Board, etc.

Typically, construction and removal of a diversion temporarily disturbs the original water course. To minimize impacts to the waterway:

- Schedule work during low flow or dry periods. Many streams are restricted as to time of year when work is allowed within the channel. This may require a diversion to be removed for the winter season and re-constructed the following spring.
- To protect downstream aquatic life, do not allow the contractor to obstruct the natural stream flow while the diversion is being constructed.
- Minimize disturbance or removal of adjacent vegetation to promote rapid re-growth after construction.
- Make sure that materials used to construct the diversion are free of potential pollutants, such as soil, silt, sand, clay, grease, and oil, prior to placement.
- When the diversion is removed, either temporarily or permanently, ensure that the stream channel is restored to its original condition.

When constructing temporary dry construction areas, dewatering may be necessary. (See [Vol. 5 No. 3](#) for more information.)

### Embankment Diversions

When constructing diversions using earthen berms or swales, minimize erosion and sediment discharges by stabilizing the banks of the diversion channel with an appropriate liner (i.e., plastic liner, filter fabric). Consider fluctuations in water depth due to storms or tides. Rip rap may also be useful to hold the liner in place and to dissipate outfall velocity.

In addition, use velocity dissipaters at the transition points in the diversion - at the origin point of the diversion and at the point the diversion re-enters the channel.

### Culvert Diversions

When using culverts to divert drainages or streams, ensure that culverts are constructed per the applicable Standard Specification for the type of pipe being used. To minimize water loss along the diversion, ensure that the contractor uses watertight joints that meet the requirements of a positive joint.

### Working in or Adjacent to the Water Course

Once water is diverted from the water course, ensure that the following practices are followed:

- All equipment operated in or adjacent to the waterway is clean and well maintained.
- Drip pans are placed under stationary equipment (pumps, etc.) and idle equipment located within or adjacent to water courses.
- Spills of oil, grease or fuel within the channel area or the original stream bank are cleaned up immediately and disposed of properly.



NS-5 applies to the temporary diversion of water from streams as well as from drainage systems such as this one discharge of sediments.



This culvert diverts stream flow under the construction road. The banks at the outfall are stabilized to prevent erosion.



Equipment operating within or adjacent to the diverted water course should be clean and well maintained.

### Caution!

Diversion activities may constrict the waterway and obstruct flow or increase velocities of flood waters.

***Inspection***

Inspect diversion structures every week and before and after significant storms. Inspect diversion channels weekly, and before and after storm events. Remove accumulated sediment and debris, and replace damaged lining as needed.

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